CLAIMS

1. A method for rendering a visual scene comprising:

measuring a travel distance through a gaseous object;

converting the gaseous object distance to a color component; and

blending the color component of the gaseous object with a color component of a non-gaseous object to produce a pixel in the visual scene.

2. The method as recited in Claim 1 wherein the travel distances are linear distances.

3. The method as recited in Claim 1 wherein the travel distance is measured from by calculating a depth of the gaseous object between front and back faces of the gaseous object from a reference point.

4. The method as recited in Claim 1 wherein the converting the gaseous object distances to the color component creates linear gaseous.

5. One or more computer-readable media comprising computer-executable instructions that, when executed, perform the method as recited in claim 1.

6. The method as recited in Claim 1 whereby the blending of a color component from the gaseous object with color component of a non gaseous object generates a pixel with visual realism.

7. The method as recited in Claim 1 further comprising assigning a constant density to the gaseous object.

8. A graphical display system for rendering a scene, comprising:

a gaseous phenomena generator, configured to (i) determine a distance traveled through a gaseous phenomenon from a reference point based upon a viewpoint of a user; (ii) convert the distance traveled to an attenuation factor; and

a blending unit, configured to blend a pixel color absent gaseous phenomenon with a pixel color value of the gaseous phenomenon based on the attenuation factor, to render a final pixel color for a portion of the gaseous phenomenon.

9. The graphical display system as recited in Claim 8, wherein the gaseous phenomenon generator module is implemented as a software program layer operating in conjunction with computer hardware.

10. The graphical display system as recited in Claim 8, wherein the graphical display system is an interactive graphics machine.

11. The graphical display system as recited in Claim 8 wherein the graphical display system is a flight simulator.

12. The graphical display system as recited in Claim 8 wherein the graphical display system is game system.

13. The graphical display system as recited in Claim 8 further comprising a display unit, configured to display the final color to the user.

14. A method for rendering a graphical scene, comprising:

determining a distance traveled through gaseous phenomena from a reference point based upon a viewpoint of a user; and

applying an attenuation factor to the gaseous phenomena based the distance to produce a gaseous phenomena pixel color; and

blending the gaseous phenomena pixel color with a pixel color absent the gaseous phenomena, to produce a final gaseous phenomena color pixel.

15. The method as recited in Claim 14 further comprising generating the gaseous phenomena pixel color based on the distance from the reference point minus the distance traveled and applying a linear gaseous phenomena equation.

16. The method as recited in Claim 14 further comprising displaying the final gaseous phenomena color pixel.

17. One or more computer-readable media comprising computer-executable instructions that, when executed, perform the method as recited in Claim 14.

18. A method for rendering a scene that includes gaseous phenomena, the method comprising:

determining a travel distance value through at least one fog object from a reference point to a pixel;

converting the travel distance value to a fog factor value; and

determining a pixel color value for the pixel based on the fog factor value, whereby the scene can be rendered using the determined pixel color.

19. The method as recited in claim 18 wherein the fog object is bounded by a front face and a back face.

20. The method as recited in claim 19 wherein the determining a travel distance value comprises:

initializing the pixel color value;

determining a back distance value from the reference point to the back face of the fog object and adding the back distance value to a color buffer value; and

determining a front distance value from the reference point to the front face of the fog object and subtracting the front distance value from the color buffer value, wherein the final color buffer value represents a scaled travel distance through the fog object.

21. The method as recited in of claim 20 wherein the front distance value and the back distance value are determined using a linear equation.

22. The method as recited in claim 21 wherein the travel distance is converted to the fog factor by solving a linear equation.

23. The method as recited in claim 21 wherein the travel distance is converted to the fog factor by solving an exponential equation.

24. The method of claim 21 wherein the travel distance is converted to the fog factor by solving an exponential-squared equation.

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